

## GREEN PLANTS FOR ECOLOGICAL AND AESTHETIC VIEWS IN URBAN SPACE IN HO CHI MINH CITY

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### ABSTRACT

*Viet Nam is suffering from severe consequences due to climate change, environmental pollution, especially in urban areas in which large cities such as Ho Chi Minh City have high population densities, leading to many problems causing harm to urban areas such as, environmental pollution... reduce the quality of life and urban aesthetics markedly. The environment and urban landscape of the city tend to get worse in part because of rapid urbanization and the development of urban areas, but the natural landscape and urban greenery have not been properly invested, levels, increasingly absent, reduce the ability to prevent harm of nature as well as regulate environmental protection. Not only has an ecological role, Stork trees are an important factor to increase the appearance of urban beauty if concerned, properly invested, contributing to the appearance, beautiful beauty as well as increase environmental values and real estate for the municipality.*

*The technological revolution has been impacting on transforming all aspects of life and urbanism, the government's planning line focuses on urban development in Vietnam towards the goal of ensuring integrated development of urban areas and rural areas, stabilizing the ecological environment, maintaining the national green infrastructure system, rational use of natural resources and land, protecting the environment and ecological balance, creating modern urban areas, friendly and impressive stature toward the future smart urban areas. Therefore, in this article, we want to mention the green factor that brings aesthetic effects and ecological environment for the sustainable development of urban areas in Ho Chi Minh City.*

**KEYWORDS:** Greenery, Urban Space, Sustainable Development, Environmental Fine Arts & Ecological Environment

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### INTRODUCTION

For many countries, especially those with a long history of formation and development, the green pieces that are shaped and interwoven in the urban architectural space are considered an important and indispensable element in every urban area, no city or urban area can lack greenery. The more the city develops, the more modern it is, the more abundant the forms of urban art are in the form and variety of genres and create a harmonious connection between the landscape and architecture, creating imprints and own cultural identity of the municipality.

Urban environment includes the natural environment which is material entities naturally occurring on the ground such as rivers, lakes, mountains and forests; in the atmosphere like sunshine, wind, rain, storm ... man-made environment created by dams, canals, houses, streets, squares, parks ... are considered as components in urban space, urban space is a three-dimensional geometric space, including landscapes, architectural constructions, gardens, lawns, etc., which contains the environmental component of human activities. In urban and architectural landscapes, trees play an important role in creating a harmonious connection between architectural works and natural landscapes, becoming an important part of architectural and urban spatial composition. Green planning is

often associated with city planning, regional planning and territorial planning. In urban and architectural landscapes, trees play an important role in creating a harmonious connection between architectural works and natural landscapes, becoming an important part of architectural and urban spatial composition. Green planning is often associated with city planning, regional planning and territorial planning.

Landscape components in urban areas include architectural populations; The network of streets with open public spaces such as parks, gardens, squares, urban functional areas, etc. creates eco-buffers, forming channels of wind, moisture, hypothermia; creating shadows and shading for people and cooling the air; releasing waste heat to create ecological balance for the environment. Public spaces can be interpreted as "common spaces for the needs of many people" [11] present in urban areas and cities, born from the formation of architecture and urban areas, associated with the social life of the people in that urban area, the gaps that are planned by the government like squares, transitional space between public and private spaces, outside public works, residential areas and other museum space, galleries ... The article uses the term greenery as a conventional phrase to refer to green patches, natural landscapes and artificial landscapes in spaces like gardens, parks, ranges of trees, lawns, ornamental plants in urban constructions.

Art elements in urban areas are forms of expressing, interacting between architectural and landscape components creatively and aesthetically for a certain space, or establishing organic links between the elements together in a space and time, that relationship is both natural and social in nature. Fine art in urban environment is a symbiotic factor in the total of fields: planning, architecture, sculpture, painting, decoration, traffic, light, green ... in which greenery is a substance important materials of visual arts in urban space, it contributes to creating the urban appearance, the cultural stature of the city, showing the civilization and quality of life of an urban.

Art is not only for the material and spiritual life of people, but it also contributes to making people - society more and more perfect, people come closer together, form thinking, high lifestyle. In the current context of the more developed and modern urban area, the more urban forms of art are plentiful, the more diverse the nuances are, creating a harmonious connection between the landscape and architecture, forming its own imprint and cultural identity, urban works of art and urban environment must have specific characteristics in order to express the characteristics of each city with its own beauty and attractiveness, besides the common ones of cities in the country.

Today, the strong development of information technology impacts every aspect of life and urbanism, the planning and focus for Vietnam's urban development towards the goal of ensuring development linking urban and rural areas, stabilizing ecological environment, maintaining national green infrastructure system, rational use of natural resources and land, environmental protection and ecological balance towards construct and develop smart and modern urban areas based on digital identity. Doing this requires the cooperation of many people and members of the society, we hope through the article to contribute perspectives on the issue of sustainable urban development through the green factor.

## **REVIEW THE LITERATURE REVIEW**

The role of landscape architecture, human ecosystems has been mentioned since the 80s, John Tillman Lyle is one of the initiators of the book *Design for Human Ecosystems* (1985), mentioned the landscape, land and natural resources are used to shape human ecosystem functions in the most sustainable ways based on natural ecosystems and that designers must understand ecosystem and how it works are in many scales, from the unit to global. Understanding of ecology to get attached to the values of people towards, to have long-term solutions, benefits and responsibilities. He said that the natural

landscape with fertility constant, varied and has its own characteristics by local nature; create biodiversity. This landscape will not be distributed but will gradually change over space and time in order to survive and grow.

The world today is much influenced by the impacts of climate change, scientific and technological advances, the issue of sustainable development in the living environment and urban landscape is increasingly important more mind. There are many studies and books on the green building movement such as: *The gray world of Green Heart; Technology, nature and sustainable landscapes* by Robert Thayer (1994) also discussed this topic. Green Heart, Robert Thayer said that the landscape is a place where "... the conflict between technology and nature is most easily felt." According to Thayer, a solid landscape is where the dominant natural system requires following factors [17, 101-110]

Use of resources must be regenerated and energy conserved.

Allow us to see, understand and solve problems between technological and natural resources.

Show that the necessary life functions are guaranteed and thoroughly taken care of.

Using technology, connecting with nature in a sustainable way, choosing the best solutions to become a part of nature, the artificial landscape that is better for our lives.

Limiting and controlling the exploitation and then neglecting the natural resources, humans must exploit in moderation in addition to the regeneration and minimizing the degradation of these ecosystems.

The coping solutions of places that depend on the characteristics of local resources, characteristics of local cultures and conservation of local ecosystems.

Thus, this issue has been raised since the early 90s, but so far, it shows an era-oriented vision that helps orient the sustainable development of people in many fields as modern life follows consumption trends, profits, and environmental waste are too much. In order to do this, creating a sustainable living environment still faces risks and challenges but it is necessary to launch the movement, uphold and move towards natural values and ecosystems, and help to raise people's awareness of its role in everyday life. Recently quite a number of seminars, conferences of planning industry and urban greenery in Ho Chi Minh City have discussed this topic.

The field of environmental fine arts has only been recognized and paid attention recently in Vietnam. In 2000, the Fine Arts Institute (belonging to Hanoi Fine Arts University) organized a workshop called Environmental Beauty, here is the first seminar on beautifying the public environment in Vietnamese cities and urban areas. In addition to researchers, art critics, sculptors, painting experts, and seminar experts, many cultural researchers. Many architects have gathered many ideas, many perspectives, many approaches in organizing the aesthetic environment for plastic art works, thereby confirming the connection between the forms of Fine arts with urban landscape architecture. The role of the environment around plastic artworks was also clearly identified at this workshop

These points and conclude are part of the foundation for us to identify and discuss the sustainable development of landscape trees in urban areas today.

## **MATERIALS AND METHODS**

The paper uses interdisciplinary research as the main research method, developed on the basis of multidisciplinary reasoning in the fields of Applied Arts / Design, Architecture (planning and landscape), and visual psychology. Sociology

of Culture... Through interdisciplinary research methods, interdisciplinary analysis, in-depth reasoning to clarify the object of study. In addition, the method of synthesizing, analyzing, comparing and verifying by a comparative method will be used to analyze and prove through comparison of domestic research contents with some countries in the world

## RESULTS

### Overview of Urban Greenery

In urban spaces, since ancient times, people have been aware of exploiting natural nature, creating more green spaces and artificial nature to establish ecological environment in the direction of bringing good benefits to the life. On the other hand, people are conscious and have actively preserved and promoted positive aspects, preserving the balance and stability of nature to sustainably exist with people.

Trees are one of 6 factors that make up the urban landscape: topography, water surface, trees, architecture, space (sky), people. Together with trees, other landscape elements such as topography, water surface, architecture are the factors that make up the scene. The combination of landscape elements will form a rich picture of the urban landscape. . Green plants that are naturally existing or man-made are factors that create and enhance the aesthetic of architectural works, improve microclimate, ecological balance, prevent dust, noise, creating shade, dividing space... Conserving and nurturing trees and vegetation is to set up the landscape system in architecture and urban areas, and the urban landscape has two main forms;

- **Natural landscapes:** Topography, Trees, Water surface (are scenes entirely formed by natural elements, without the arrangement, intervention and presence of humans)
- **Artificial landscapes:** Parks, gardens, small landscapes (those that are formed as a result of human impact processes distort natural landscapes)

Visual arts with round art, reliefs, paintings, installation art ... are integrated into public works such as fountains, gardens, parks... in public places or in architectural works, always combined with green space, architecture plays a key role. The art of decorating the park is not a big topic, it is often diverse, gentle, joyful, close to everyday life, which always communicates and adorns the urban space more beautiful, it also has a great significance that reflects the aesthetic level of each nation and each era.

### Trees Create Aesthetics and Landscapes for the City

Trees are older than architecture, constituting urban characteristics, urban faces, shades and landscapes for urban areas, urban trees still retain historical values, imprints, greenery systems perennial still exists. Author Hoang Dao Kinh (Vietnam Association of Architects) said: "Trees express their history as a component of the priceless architectural heritage and urban culture, which is a beauty, show the aesthetic culture of each urban area", being the first point of access to the community and tourists when coming to a locality, a region, a country and showing the intellectual level and development of that urban area



**Figure 1: Route of Trees, Paths, Carpets, Flower Gardens Along the Banks of Nhieu Loc Canal.**  
(Source Author)

The cultural and spiritual values of the green tree symbolize many meanings in the cultural, spiritual and aesthetic life... creating typical human values for each municipality and country. Trees also help people cultivate, perfect themselves, be aware of the community in the process of tending and nurturing trees, creating affection, the bond between people and nature, increasing the sense of aesthetics beauty, the need to live in a beautiful environment with the understanding and responsibility to contribute to the urban living environment.

The abundance and diversity of greenery varies according to terrain, climatic regions, bringing feelings of time and place... from association, expressed through a number of plants, flowers, characteristics Spring season: Plum (South), peach blossom (North). Summer: *Hoa Phuong*; Autumn: Chrysanthemum, flowers in compliance with; Winter: bamboo, pine (Christmas season) ... creating the richness and liveliness of the urban landscape, creating beauty, typical for each residential area, the complex of works in the urban area, increasing the appearance beauty, improve the quality of life for people as well as increase the value of real estate for the city.

### **Some Forms of Greenery are Common in Urban Areas**

Based on the topography, urban spatial layout, population distribution conditions ... the arrangement of trees has suitable layout types, basically there are 3 basic forms for greenery layout: points, routes, plaques, arrangement of trees (cities, civil areas, residential areas), the above forms will have different scales. For example: layout of urban greenery (city), layout of greenery in residential area (district, district), layout of greenery in residential unit (ward, quarter).

*Arrangement of greenery into spots:* System of green trees is distributed on many scattered land plots in urban areas. This layout is often used for *urban areas or renovated residential areas* making use of vacant land to enhance the greenery.

*Arrangement of greenery into lines and strips:* From terrain, land function, planting trees along rivers, canals or roads or isolated tree strips forming large strips of trees intermingled with strip of construction land. This layout is popularly used in newly built cities, the tree strips are interconnected to form continuous systems, promoting efficiency in planning schemes and improving microclimate.

*Layout of greenery into plaques:* are greenery areas with large surface area, this arrangement is often found in large urban areas, fully functional residential areas or complete residential units. Form of general planning structure of the city includes types: circle, spokes, spider web, chess box, mixed.

### **Trees Bring Ecological Values**

Humans born from the natural world, in harmony with their external relationships, become part of the ecosystem, and

therefore have the right to interact with the flora and fauna present in the biosphere., humans and plants coalesce to interact with each other to form ecosystems around the globe. Humans have abused their advantages in the natural world, increasingly interfering with nature in their own interests, destroying the environment, destroying the flora and fauna, of which trees are a worthy victim. Most injured because it cannot run away from humans like other animals. The false tendency of the above has reached an alarming level, the environment is deteriorating due to the lack of greenery, the aesthetic from the natural landscape has become increasingly poor, and especially the role of green trees in protecting people lose little by little.

Green trees serve as a means to perform the function of regulating the climate, preventing erosion, creating ecological zones for balancing the environment,

Embellish landscapes in living environment, architectural works, create green areas for urban environment

Trees regulate air temperature, increase humidity, regulate wind mode

Ho Chi Minh City has characteristics such as the average temperature is always hotter than other localities in the region due to the heat emitted by the operation of millions of vehicles and hundreds of thousands of air conditioners and many other equipments use other heat energy, the high temperature will create hot air and hot air, which will rise slightly, create opportunities for cold air from other places to gather, this heat island phenomenon is one of the direct causes of unusually heavy rainfall in Ho Chi Minh City in recent years. Trees can reduce heat island by partially absorbing the temperature and cooling the atmosphere, developing greenery to decorate instead of concreting, which also helps absorb water to land, contributing to flood control and conservation of groundwater which are essential for the city.

## EXPERIENCE FROM TRADITION

Green elements in traditional architecture have taken advantage of creating shade, improve the climate of the natural environment, beautify the landscape and environment, create harmony between landscape architecture to help improve micro-air conditions and energy saving, trees are also a factor connecting and reconciling soil, water, sunshine and wind elements in traditional architectural and urban spaces, leaving a valuable store of experience about solutions in tropical architecture for later generations. Traditional folk architecture can be considered as "green architecture" and "ecological architecture" containing elements of sustainable development.

The greenery layout in the houses of the ancient Vietnamese is relatively flexible to suit the conditions of each home and a feng shui support for the residence. Like other components in the natural world, trees are affected by the environment and adapt to the environment that manifests a high-low, big- small, hard-soft shape... The ancients know how to exploit and use the characteristics of trees for their living environment; shade trees to block out the sun, plant trellises around the house like melon, cucurbits, etc... to form natural sunshades to avoid hot sun rays for people and cattle, prevent glare from reflections from walls sweep light around the house, and also get vegetables and food. Under the action of heat energy, leaves do not heat up but cool due to evaporation, creating moisture to calm the surrounding air. Experience handed down in folk like "bananas later, areca before" shows the logic of the ancients when dealing with weather climates.

Trees are planted in the right position but also block the drafts, dust, noise, cover visibility... for the house. Separation of each home by the fence wall with green trees, creating privacy while preserving the sentiment of neighbors. Linked by greenery such as *Duối*, *Chè tàu*, *Tre trúc*... or a combination of earthen walls, bricks and vines. Ensuring the

discreet, relative separation between the campus of the home but still keep the open, neighboring exchanges. Trees not only provide shade but also create a fresh beauty for the campus and the overall home. From the different perspectives from the outside, it can be seen that the trees will partially obscure the architecture of the house, making the house hidden under the trees, reducing the stiffness of lines, materials, and being in harmony with the surrounding nature, creates a very natural aesthetic.



**Figure 2: Trees in Traditional Hue Garden Houses, Sticking with Nature (Source Author).**

Thus, in the traditional residence space, Vietnamese people are always aware of balancing the ecological environment through the use of open, open space, using friendly materials of natural origin, using and constantly creating new values for the water element... but the green part is an important factor to create harmony with nature in the harsh environment, always changing of nature. Characteristics of dealing with the natural environment in the residence space of Vietnamese people is to show the harmony in behavior, flexibility in awareness and flexibility in handling, knowing to take advantage to overcome difficulties, difficult, turning difficulties into a favorable process of living with nature.

## **URBAN GREENERY IN SEVERAL COUNTRIES AROUND THE WORLD**

In developed countries such as Europe, the US and Japan, although natural climates have very cold seasons, interrupting the growth of greenery, they are the countries that have long taken advantage of trees, the landscape creates modern cities associated with the fresh and beautiful environment with its own characteristics.

In large cities in the US, the functional buildings are clearly divided, the trees are arranged in almost all areas of the project with high aesthetic quality, showing the level of thinking and ability to take advantage of nature in a creative way. For high-rise and super-high-rise projects in the city, investors must reserve a part of land for planting greenery, flower gardens and small landscapes and spend the cost of building living space, relaxation, coffee ... in those areas lower floors in the heart of the work for the community, then the above the function of the work.

Housing area, modern architecture and quite homogeneous, all have surrounding garden area, this garden's landlord must be responsible for raising beautiful plants to create a distinctive style and bring abundance to the landscape of the residence. This is one of the mandatory and very strict legal regulations, so that the urban environment is fresh, beautiful, full of trees and highly aesthetic.





**Figure 3: Form of Greenery in Front of Headquarters, Commercial and Administrative Areas on New York Street (source: Author).**



**Figure 4: Housing Area with Beautifully Landscaped Greenery, San Francisco (source: Author).**

Public areas, green parks are scattered evenly throughout the area, streets with large areas, in the most comprehensive locations, the most beautiful views and invested in the form of artistic decoration, bringing fresh relaxation space, ideal landscape for the community. Public or private universities are located in separate areas with spacious campuses, each of which is a forest, an ecological garden with functional blocks and lecture halls interspersed with green foliage and gardens, combine with the form of decorative arts arranged into very beautiful, impressive and friendly spaces. Thus, even though there are cold winters every year, the weather is not too hot to reduce heat and create shade, but here people with sense and responsibility still cherish and cultivate and embellish environmental landscape to bring fresh, beautiful living space to the community, showing a very high culture in relation to nature and the living environment. On the other hand, it shows that the demand and awareness of people are very high in respecting, preserving and embellishing the landscape in their living space.

Seoul City of South Korea is a modern city but rich in greenery interspersed with installation art to create an attractive and impressive city, in every public area, park, flower garden, array. Green trees are evenly distributed throughout the streets, in front of each architectural work, increasing eye-catching aesthetics for the works in harmony with the surrounding landscape. The diversity of greens is decorated with art, bringing beautiful spaces, visual appeal, community friendliness, and connecting with architecture and landscapes that characterize the city. It also demonstrates the government's interest in investment as well as people's awareness in respect, preservation and embellishment of the landscape.





**Figure 5: Decorative Arrangement Trees Create Aesthetics for Buildings and Streets (Source: Author).**



**Figure 6: Overpass - Seoullo Station 7010 Sky Park, Inaugurated in 2017 (Source: tripzilla.com)**

There are daring projects to integrate green elements into architectural and urban spaces, one of which is the famous Seoullo station 7010 sky park project, building a pedestrian overpass to solve traffic congestion through the main avenue, turning the bridge into a green park in the heart of the city, combining green space and cultural, art, night music for residents around the area, and becoming one of the famous tourist destinations of Seoul today

## REVIEW THE LITERATURE REVIEW

### Trees in HCMC Today

Ho Chi Minh City is currently one of the most dynamic cities in Vietnam with dynamism changing and constantly developing in economy - culture and all aspects of social life, forming a modern city and a major economic center of the country, the city inherits quite a dense system of trees, has aesthetic value and bears many historical marks. Today, it has become the most dynamic and modern city in the country, but up to now, it has shown that the development is not synchronized and management is not strict, so there are many limitations, fragmentation and not clear about the scene, urban landscape and beauty, lack of green areas, many areas have been concretized, and ecological imbalance. The city has a rapid development speed, ineffective management leads to the consequences of natural and air pollution, sound pollution... which are the causes of the decline in the quality of life, the residential areas lack greenery, impact on urban landscape and adversely affect the environment.

Trees have a great effect in protecting the environment, adapting to anti-climate change green trees widely serve people regardless anyone. The report of the Department of Construction shows that the area of park land planning in the whole city is 11,418.47 hectares, by the end of 2018, the city has 49, 16 hectares of park land, the average area of park land is 0,49 m<sup>2</sup>/person. According to statistics, from 2012 - 2018, the total area of parks and green areas of the city increased by an estimated 158 hectares. In particular, the area of public parks increased by 10,68 hectares, the area of parks in residential areas increased by 58,03 hectares, the area of public green areas increased by 87,94 hectares.[10]

Currently, the park distribution in the city area is uneven and unreasonable. The inner-city and central districts are home to a larger number of parks than the rest largely due to history. At the same time, in the new districts and suburban districts, the area of public park land is very limited despite the large land fund for planning green parks, for example: districts 9, 12 and Thu Duc, Binh Tan, Nha Be, Hoc Mon, Cu Chi and Binh Chanh do not have any public park. With the current investment speed (1,54 ha/year), it takes a lot of time to green the remaining 10,000 ha of park land in the city.



**Figure 7: Trees in the Center of Present Ho Chi Minh City and Saigon in the 1950s (Source: Nhac xua 360.vn).**



**Figure 8: The Garden Next to Le Quy Don School; Ba Huyen Thanh Quan; Tree Route Next to the Children's Cultural House.**



**Figure 9: Trees Along Nhieu Loc Canal - Green area on Both Sides of Le Van Sy Bridge and Truong Son Traffic Island.**

In the center of Ho Chi Minh City at present, low-rise buildings and office buildings, people are gradually aware and conscious of protecting the existing greenery of parks, encouraging people to plant more trees in clusters works to create a beautiful landscape environment as well as air convection, creating shade. Many places also pay attention to supplementing green areas for urban areas by creating green buildings, green walls covered with vines, and "rooftop gardens" that both improve the climate and achieve aesthetics, nervous and visual restoration ... In the central streets such



as Le Loi, Nguyen Hue, Dong Khoi streets... the works are created green and decorated on the occasion of holidays.

The system of sidewalks and street surfaces is being improved, many places in front of agencies and households have been proactive in embellishing and planting more plants, ornamental flowers in front of the gate or the buffer, the median of the walkway... create a green, neat, showing the awareness and behavior very cultural to nature and the surrounding environment. For public works such as buildings, condominiums, supermarkets, trade centers... newly built often set aside certain setbacks to plant trees, small landscapes and flower gardens around the project. The owners of well-aware residential buildings are making the most of any vacant space to plant trees in the building.

### **Trees for Public Spaces**

Trees are used for public spaces for everyone to be equal in enjoying greenery, serving social utilities (or for entertainment, cultural activities, and social activities). Recently, Ho Chi Minh City has planted trees on many roads with wide sidewalks or planted trees under the bridges, offices of some offices, etc., helping the green area increase significantly. However, this green area only has the impact of improving the air along the route, not having a great impact on the aesthetic and air environment of the whole city.

### **Trees in the Park**

The park has a community service function, reducing the building density, improving the environment, creating a harmonious connection with urban space, and the park becomes a community living space of the city and a place for cultural exchange activities, it also took place during the holidays, Tet, daily activities to serve the people of the city and visitors are known as a park, these are the large greenery areas in the city dividing many management and usage: City-level parks (for 300,000 people) This level parks often have some more specific features and objects such as cultural parks, sport parks and parks for Children, science and technology parks, meeting weekly and monthly professional accommodation and recreation needs of residents. District-level parks (for 50,000 people) and communal-level parks: (for 10,000 people) are resting places and entertainment places of residential units, residential organizations, residential areas, meeting the need for momentary rest or daily residents.

Ho Chi Minh City has large parks such as *Tao Dan*, *Phu Lam*, *Le Van Tam*, *30/4 Park*, *Gia Dinh Park*, *23/9 Park* and *Tao Dan park*, etc. Department of Transportation - management agency about the state of green area development of Ho Chi Minh City said that most of the big parks such as *Tao Dan*, *Le Van Tam*, *23.9 park*, *Gia Dinh*, *Hoang Van Thu*, and *Thao Cam Vien* ... all existed before 1975. Coming Nowadays, the city has almost no other major parks added while the population of the city is growing very fast. The park is also unevenly distributed, with about 50% concentrated in district 1 and district 11. Many parks that the area of public service is still narrow, in the situation of being occupied with land and used for the wrong purposes such as: organize restaurants, purchase and sale of goods, music stage, unit offices, residence places (*Tao Dan Park*, *Le Thi Rieng*, *Phu Lam*, *Hai Nam* .... One of the reasons for the significant reduction of the park area are due to the fact that many residential projects do not comply with green development as planned, and a lot of land for green development is used for other purposes. [9]

Currently, in the inner city, the average greenery area per new resident is 0.92m<sup>2</sup>/person, while according to Vietnam's construction standards this rate must be over 7m<sup>2</sup>/person. At the Scientific Conference "Planning and development orientations of parks, trees and lighting of urban districts in 2019 - 2025", Mr. Nguyen Thien Nhan said that Ho Chi Minh City is quite developed economy, but about green trees is too backward. According to the plan, the average

greenery area is 6 -7 m<sup>2</sup>/person but currently only about 0.5 m<sup>2</sup>/person; total area of green trees is only 8% higher than required. Newly planned urban areas have a part of the area for trees corresponding to the norm of 7 m<sup>2</sup>/person but in fact only reach 0.5 m<sup>2</sup>/person. [10]

In the city of large parks formerly "high walls, closed fences" is now almost cleared or replaced by trees, the view from the beautiful landscape inside of the air. This green space was extended to the surrounding areas, the parks have now removed the old solid barriers to expand the natural access to the people. The art of decorating the park is always combined with the natural green space, architecture plays a key role, the art of decorating the park is a participating factor and always has the effect of conveying and embellishing. For the project to be more beautiful, on the other hand it also has a great meaning that reflects the aesthetic level of each nation and each area.

**Greenery:** This is a small and medium-sized greenery, often planted with some shade trees, the remaining is a decorative greenery function including many rare ornamental flowers, combined with small architectures have decorative effect (monument nozzle, hut...), flower garden is a short place of urban residents. Currently, many streets in the central districts of the trees on the sidewalk intertwined with flower beds have made the streets beautiful and friendly to residents and when traveling on the road and walking on the street.

**Street greenery:** rows of trees arranged along large streets (with a curb of more than 3m<sup>2</sup> wide. These rows of trees can be arranged between the driveways (*Hung Vuong, Nguyen Chi Thanh*) or arranged on one side, street greenery is used to shade the pedestrian, partially block the roadway, obstruct smoke and noise into neighboring residential areas.

A series of green tree-lined roads in the heart of the city such as *Ton Duc Thang, Mac Dinh Chi, Pasteur, Nguyen Thi Minh Khai* (District 1), *Vo Van Tan, Nguyen Dinh Chieu* (District 3), *Nguyen Trai and Nguyen Van Cu, Le Hong Phong, Nguyen Chi Thanh, Hung Vuong, An Duong Vuong* and *Ngo Gia Tu* (District 10 borders District 5). Some trees are located within the land of public works, serving a wide range of users of public works such as government agencies, schools, hospitals, museums, relics, Spiritual works, landscapes, etc. are often carefully and beautifully invested.



Figure 10: 100-Year-Old Trees on Ton Duc Thang St are no Longer Available (photo: Anh Khoa), Ngo Gia Tu St 10 District



Figure 11: Le Van Tam Park, Tao Dan Cultural Park, and 23/9 Park (Source: Internet)

Ancient rows of big trees, dozens of meters high and hundreds of years old, shine, is an ideal place to escape from the sun and rest for Saigon people. The tree in the heart of the city is a valuable asset that every Saigonese treasures to preserve, many streets are lined with green trees and flowers blooming all year round because they are specialized in planting a tree such as Phan Xich Long road; two banks of *Nhieu Loc* canal running through the districts are divided according to many typical flower plants: the section of *Tan Binh* district: paper flowers, water cow flowers; In District 3 Bang Lang flower, District 1 of Bang Lang, and *Binh Thanh* have many sesame trees, many nuances and typical scents.

Thus, in the whole city, street trees are currently not beautiful, many routes are lack of trees, most are also mixed, low, small trees, evenly distributed among urban districts with such narrow area but the arrangement of decoration layout has not been paid much attention, so it is still monotonous, lacking in synchronization and not creating a specific mark for each street, each area, not yet exploiting the potential, as well as consciousness responsibilities of people or headquarters, agencies in place to take care of, embellish and preserve to contribute to beautify the living space, build a sense of good attitude to trees and landscapes.

## **TREES IN THE BUILDING GROUP**

### **Trees in Streets, Residential Areas**

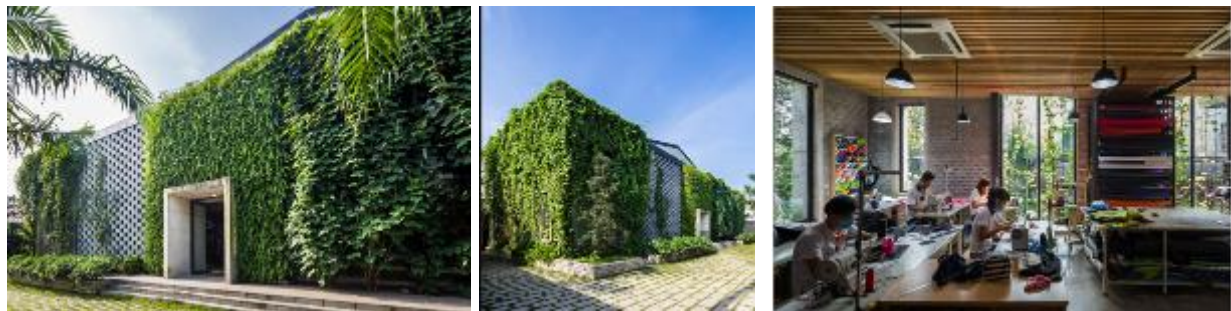
The group of green plants belonging to each house, each apartment in residential areas, may share greenery, garden, small garden, with an area of about 300m<sup>2</sup>, accounting for about 15% of the group of houses according to regulations but in fact limited due to high construction density and often occupied by residents for other functions. The location of trees is usually in the middle of the group of houses, combined with the architecture of the house, the terrain of the surrounding land to create landscapes, often using trees with architectural shapes associated with the house to limit the heat, cool down, reduce noise, reduce smoke, dust... and create beautiful green scenery for the house. A characteristic of the city is that most of the street houses are both in business and for living, due to lack of management, the situation of misappropriation of pavements, public places of trade, and the streets lack of trees, clutter, frustration and pollution reduce the urban landscape. Strengthening trees will help reduce stifling, pollution and increase awareness for people on the street, besides creating a link between the surrounding landscape and architecture, softening artificial coarseness with the flexibility and flexibility of nature and green.

Recently, in the city, many gardens have been hung on multi-storey townhouses, buildings, creating vacant gardens, places to communicate with the community, and to erase the boundaries inside and outside the building, to open up between the two layers of glass covering the outer wall to increase the efficiency of vertical natural ventilation, the open gardens in different floors create natural horizontal airflow, the surface absorbs sun solar energy and wind energy are regularly encountered in projects at competitions and in some on-going projects. These are praiseworthy signals in the tireless search of a Vietnamese architecture that has its own identity, pride and integration to keep up with the general development trend of the world and the lasting development trend.

### **Greenery in the Housing Area**

The city has a high construction density and population, a small residential area, a lot of narrow town houses, an area for greenery is not much, the introduction of trees into residential areas and streets, alleys are very necessary to improve the living environment and regulate airflow, combat the adverse effects from the climate and the outside environment, create aesthetic for the house, many neighborhoods, homeowners make fences with rows of trees like the new urban. The

common forms are greening of climbing plants on walls and stakes, roofs, planting ornamental flowers around the house for fresh living space, contributing to creating a green area for streets and residential areas. Solutions for ventilation, light pickup, air convection, micro-climate improvement; using greenery, garden, roof garden, hanging garden; use of environmentally friendly materials, recycled materials, natural materials, biodegradable and reusable materials; Recycling; Used by many residents, which is considered an ecological solution suitable for small town houses, this model should be encouraged to expand to the community.



**Figure 12: Desino Garment Factory, Bình Chánh District, Architect Ho Khue Architect (Source: Architectural Magazine).**



**Figure 13: Green Trees Outside the Housing Architecture of Vinhomes House District 7; Thao Dien's Villa (Source: cafee.net).**

Currently many houses tend to use modern style greenery; fewer trees and new elements such as parquet floors, stone lamps, water troughs, and ornamental plants are selected to make the garden space available in the interior space. A healthy city desperately needs models of green - clean and civilized, needs designers who work in a proactive and responsible manner with the community, always determining the relationship between buildings architecture with people - and the natural environment is a core and essential issue in the development trend of society.

## DISCUSSIONS

Efforts to create an eco-friendly, modern and eco-friendly city, increasing the area, utilities and fine art elements for the city, developing an attractive new urban image like some other cities such as Ha Long City, Rach Gia City (the city of green trees and water surface)... However, if you want to do this, you need to have comprehensive solutions to improve the urban environment and limit the impacts climate change impacts of natural disasters, corresponding methods such as ecological design, green design, and sustainable ecological design. Basically, these methods are looking for ways to create a balance and harmony between nature and buildings. With the characteristics of geography, climate and people in the city, together with the process of urbanization, growth and rapid development, we need specific solutions and solutions if we have some ideas as follows:



### Improve Urban Ecosystems Associated with Trees

Expanding the eco roof system; Green roof form is similar to that of old European grass, back to the trend of green building green design today, ecological roofs can perform a number of different roles: serving features aesthetics, helping the building integrate into nature, and supporting climate stability, combining grass materials, groves, colorful flowers ... if fully loaded, it can create the actual roof garden on many buildings, a live roof requires constant care, the drawback is that it has the potential to burn in hot and dry climates. Thus great effectiveness is to protect against damage from ultraviolet radiation, and minimize the use of tiles, corrugated tiles, paving stones or other types of tiles that have an urban thermal effect. In addition, the eco-system may consist of lawns, shrubs, trees, lakes, greening walls, terraces.



**Figure 14: Simulation of Shade Tree Canopies for Public areas and Greening of Roofs (Source: Internet).**



**Figure 15: Residential Projects Associated with Greenery and Water in the City - Vertical Greenery.**



**Figure 16: Creating Habitat for Wildlife in Public Areas (Source: Printerest).**

From the high floor overlooking the city during the day there are many areas that feel like stainless steel cities because they are covered by countless water tanks, stainless steel exhaust fan, energy water heaters, batteries solar energy... has the ability to retain heat and reflect light, making the city more dazzling, so greening and many other components are necessary and applicable, feasible because it is easy to implement for the majority of people.

Enhancing vertical green space to establish a vertical garden or greenery, green walls, hanging on the surface, surface, inside and outside the building vertically to create large green spaces, space green for architecture. The vertical landscape contributes to creating a microclimate at the façade on each floor, which can be used as a wind shield, absorbing

carbon dioxide, generating oxygen, increasing the freshness of the user when the trees are install in many places throughout the building, such a large amount of concrete materials, glass, iron... also softened by plants and green patches aesthetically.

### Strengthening the Natural Ecosystem

The architectural and planning projects all want the landscape, ecosystems to be regenerated and improved as an advantage of the project, this makes the works more friendly to residents because they can continue access to the natural world which is only in memory when living in the city. If not aware of this, the investor when having the project may have flattened everything to clear the ground, losing the value of the senses and the existing greenery. Develop projects that are appropriate to the context of the area: topography, soil, drainage patterns, and natural vegetation, minimize impacts and disturbance to the surrounding areas of the building such as tree demolition green, vegetative cover, in which the main form is to increase the presence of wildlife in public spaces such as park squares, flower gardens, walking gardens, traffic islands, etc. Contribute to restoring and regenerating the common ecosystem in a number of forms:

- Maintain and enhance the natural ecosystem, reduce the area of interwoven grass with a variety of crops, select local trees to attract wild natural animals to the habitats: birds, squirrels, bats, cats...
- Creating habitat for wildlife, corridors, caves, nests for wildlife to stop for refuge, flat courtyards, paths and providing drinking water, food containers ... Roofs Green cover can absorb rain water, provide insulation, as a habitat for wildlife.
- Create a resting area, look at and interact with wildlife, helping people to interact, care for and engage with this group of wildlife. Nowadays many people are interested in bringing rice and birds to birds every day in parks, canals, gardens...
- Create a lake, shallow areas to create water surface, assist in collecting rainwater runoff and planting appropriate trees, shrubs, flowers, vegetation ... creating beautiful landscapes from water and green elements .

### Enhancing Fine Art Elements in Arranging Green Space

The visual arts contribute to the urban format, determine the cultural stature, the quality of life of an urban area, and the visual arts impact the public environment, helping dull and monotonous cities in the public wave. In recent years, industrialization and IT have been revived, developing positive impacts and urban life. Fine arts in the language of lines, shapes, colors ... impacting on urban spatial components with condensed forms, layout, conventions that create the visual attraction, it exalts the appearance beautiful, at the same time, highlighting the form and content but still meeting the function of the building in space.



**Figure 17: Fine Art Contributes to Creating a Variety, Attractiveness, Increasing the Beauty of the Trees, the Urban Landscape (Source: Internet).**

Artworks decorating the park are always associated with the natural green space, through organizing, setting and shaping green trees combined with terrain, water surface, other materials, installation art... creating strange, creative and funny works, creating aesthetic and harmonious space. The content is often diverse, gentle, joyful, close to daily life can be works associated with application needs such as seating legs, gentle playing facilities...

### **State Policy Guidelines and People's Awareness**

The society is growing day by day, besides the need for material enjoyment, the demand for appreciation of the arts and culture requires more and more. Therefore, environmental art is one of the important elements to meet the needs of enjoying the spiritual culture of the people of each region and urban areas in particular, which are expressed specifically in the environment of parks, flower garden, amusement park, entertainment or oasis, urban center square.

The current situation of urban development in Vietnam has changed compared to the past in terms of the nature and functions of big cities, typical cities and urban spatial characteristics by region, besides the challenges of development unbalanced development, unsustainable development, limitations of administrative management capacity in all areas of the government authorities are implementing and managing urban areas. The government's policy advocates to grasp this need to provide guidelines for urban development policies on ecological environment and urban beauty, increasing people's awareness through providing incentives to encourage participation of people in the city, green, beautiful and ecological from the inside to the street and the awareness of public places. The population group and the commune-level committee are the most reasonable level to develop and mobilize people's awareness in addition to the professional support of the urban management agency of the green tree company and the city park.

### **CONCLUSIONS**

It is difficult for people to protect themselves in the absence of trees and the loss of green areas, the closer they are to destroy themselves and their descendants physically and mentally. In the era of information technology, industrial revolution, the disconnection between buildings and nature and the natural environment is increasingly serious, reducing the quality of life and aesthetics of the environment. Thus opening wide areas of greenery and a variety of fine arts forms are needed for a sustainable urban development. Not only has an ecological role, Stork trees are an important factor to increase the appearance of urban beauty if concerned, properly invested, contributing to the appearance, beautiful beauty as well as increase, environmental values and real estate for the municipality.

In the context of climate change, environment, the urban landscape of Ho Chi Minh City tends to deteriorate partly because of rapid urbanization, urban development but natural landscape, green and green areas. The city has not been paid adequate attention to investment, is increasingly lacking, gradually losing its ability to prevent harms from nature as well as regulate environmental protection. Therefore, there should be comprehensive measures to limit the climate change impacts of natural disasters on the basis of adaptation and harmonization. Sustainable development and connecting with nature are the responsibility of each person in living spaces in particular and urban space in general.

The technological revolution has been impacting on transforming all aspects of life and urbanism, the government's planning line focuses on urban development in Vietnam towards the goal of ensuring integrated development of urban areas and rural areas, stabilizing the ecological environment, maintaining the national green infrastructure system, rational use of natural resources and land, protecting the environment and ecological balance, creating modern urban areas,

friendly and stature-headed towards smart future urban areas. Promote the cultural identities of the city based on the natural cultural and historical pedestals of each region, while preserving and promoting the unique cultural features of Vietnam.

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